

ABSTRACT
A METHOD OF LOGGING A BOREHOLE

In the field of wellbore data logging it is known to use isotopic neutron
5 sources in a neutron capture logging technique. However, continuous
isotopic sources are unpopular for regulatory and safety reasons.

Attempts to employ neutron generator tubes to generate neutron bursts for
use in the neutron capture technique have encountered various difficulties in
10 areas connected with signal identification and processing.

The disclosure relates to a method of data logging in which a low burst rate
neutron generator tube is pulsed at comparatively low rates to generate
neutron bursts that are captured in atomic nuclei in a proximal formation.
15 The gamma radiation arising from the neutron capture is detected over a
gating intervals defined by temporally distinct points. The gamma detector
output is integrated over the gating interval to provide a measure of the
decay rate that is independent of the pulse rate. Consequently the signal
processing problems do not arise.

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(Figure 1)